

REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Formalities

The specification has been revised to place the application in proper U.S. format, and to correct various grammatical and idiomatic errors. Because the changes are all formal in nature, it is respectfully submitted that the changes do not involve new matter.

2. Rejection of Claims 6-10 and 17-19 Under 35 USC §112, 2nd Paragraph

This rejection has been addressed by amending the claims to clarify that the mechanism of the invention involves multiple “local” communication devices connected by a signal line, and multiple “remote” communication devices connected by a signal line, as depicted in Fig. 2. The invention is to speed up wireless data transmission between one of the local devices and one of the remote devices by dividing the data to be transmitted into “units” and having multiple local devices transmit the units in a parallel transmission arrangement for re-assembly by one of the remote units.

3. Rejection of Claims 1-8 Under 35 USC §102(e) in view of U.S. Patent Publication No. 2003/0099301 (Green)

This rejection is respectfully traversed on the grounds that the Green publication neither discloses nor suggests the claimed division of data into units for simultaneous wireless transmission *by multiple* communication devices *to multiple* remote communication devices for re-assembly by one of the remote devices. Instead, the Green patent merely discloses wireless communications between a hub and multiple peripherals. The data units are transmitted and received by a single device rather than multiple devices connected by a signal line, and the transmitted units are not received by multiple remote devices connected by a signal line so that the units received by the multiple devices can be re-assembled by one of the devices.

Serial Number 09/912,296

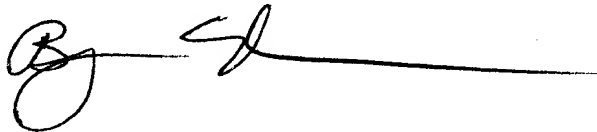
By dividing the task of wireless transmission between multiple devices, with each device transmitting at the maximum rate permitted by the wireless network protocol, the amount of data that can be transmitted in a given period by a single device is multiplied by the number of devices transmitting the data. If a single device can transmit 14.4 Kb/sec., then two devices can transmit 28.8 Kb/sec. over the same network, while three devices can transmit 43.2 Kb/sec., and so forth.

Since none of the references of record discloses this principle of parallel transmission of portions of the data to be transmitted, whether the references are considered together or in any reasonable combination, withdrawal of the rejection based on prior art is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC

A handwritten signature in black ink, appearing to be 'B. E. Urcia', followed by a long horizontal line extending to the right.

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MARKED-UP COPY OF
ORIGINAL SPECIFICATION
Amdt. Submitted 3/29/04
Ser. No. 09/912,296
Examiner C. Knoll
Group Art Unit 2112

MECHANISM FOR EFFECTING A FAST DATA TRANSMISSION BETWEEN COMMUNICATION DEVICES

FIELD OF THE INVENTION

5 The present invention relates to communication devices and more particularly to a mechanism for effecting a fast data transmission between communication devices.

BACKGROUND OF THE INVENTION

 In recent years, the unit price of cellular ~~phone-phones~~ has been reduced significantly as the ~~booming-of~~ communication industry has boomed. And in turn more
10 and more people like to use cellular phones. Further, as ~~the~~ development revolved more advantageous benefits are provided by mobile phones, ~~such as which have~~ become ever more slim, multifunctional, and convenient while still maintaining a high communication quality. Moreover, there is a communication software provided by a
15 newly commercial mobile phone for providing a variety of data transmissions such as alphabetic data, graphical data, or the like. Hence, in additional to conversation it is possible ~~of communicating to~~ communicate alphabetic data, graphical data, etc. between two mobile phone users. This greatly enhances the convenience of communication among people.

 A conventional data transmission implemented by mobile phones is shown in FIG. 1
20 wherein data is transmitted from one mobile phone to a specific remote mobile phone or a plurality of remote mobile phones through a telephone exchange. However, in either of the above ease cases, the data transmission rate is at most 14K bit per second (bps) as defined by the existing mobile phone communication protocol. Hence, a lot of time is consumed in transmitting a large amount of data. This is inconvenient in use. Thus, a
25 need for improvement exists.

SUMMARY OF THE INVENTION

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It is therefore an object of the present invention to provide a mechanism comprising a data transmission software in a memory of each of a plurality of communication devices and a data transmission interface in each device respectively for establishing a connection between the devices through at least one signal line and effecting a data transmission therebetween wherein in transmitting data from one local device to ~~the other~~ a remote one, the data transmission software divides data into a plurality of units each having a predetermined size, the units are individually transmitted to ~~the other~~ another local device through the signal line, and the other local device transmits the units through a wireless communication with a corresponding remote device; and in receiving data, the data transmission software in the device receives the units sent from the remote other device, the received units are sent to one of the local devices through the signal line, and the data transmission software in the device regroups the units to recover as an original data. By utilizing this, it is possible of effecting a fast data transmission between communication devices.

The above and other objects, features and advantages of the present invention will become apparent from the following detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 schematically shows a conventional data transmission implemented by mobile phones;

FIG. 2 schematically shows a fast data transmission implemented by communication devices according to the invention;

FIG. 3 is a flow chart diagram showing how CPU of a communication device transmits data; and

FIG. 4 is a flow chart diagram showing how CPU of the other communication device receives data.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 2, there is shown a mechanism for effecting a fast data transmission between communication devices constructed in accordance with the invention. A data transmission interface is provided in each communication device. A data transmission software is installed in the memory of each communication device. With such interface, one communication device, referred to for convenience as a "local" communication device, may establish a connection with another communication device, referred to as another "local" communication device, having the same configuration through at least one signal line. Thus, communication devices may effect a signal transmission therebetween.

In the case of transmitting data from one local communication device to another remote one, the user may input instructions provided by the data transmission software by keying on one communication device ~~for setting to set the~~ one communication device as a master and another local communication device as a slave. Then the data transmission software divides the data into a plurality of units each having a predetermined size. Such units are individually transmitted to the slave through the local signal line. Finally, all channels belonging to master and slave are utilized for transmitting units through wireless communication to the remote communication device.

In another case the master and slave may utilize data transmission software to receive units from a remote communication device. Then units are sent to one master over the signal line. Data transmission software in the communication device may then regroup units to recover a complete original data. Note that methods for dividing data and regrouping data units are well known. Further, the object of the invention is not to provide a method to solve problems associated therewith. Thus a detailed description thereof is omitted herein for the sake of brevity.

In the invention, the data transmission interface is a universal serial bus (USB)

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interface. ~~Communication~~ Each communication device may utilize a transmission protocol implemented in USB to determine how to transmit a signal. In detail, in response to data divided into units by the master, the transmission protocol implemented in USB is utilized to transmit units to a remote communication device through an appropriate slave. As the remote communication device receives units, the transmission protocol is again utilized to send the received units to the master for regrouping.

In the invention, when data is divided into a plurality of units by the master, a unique identification (ID) associated with one communication device (master or slave) is assigned to each unit. Hence, the master may send a unit to a corresponding slave based on the ID. Moreover, as the communication device receives units and the received units are sent to the master for regrouping, data transmission software in the master may assemble units to recover a complete original data based on the IDs.

Referring to FIG. 3, a flow chart diagram shows how a central processing unit (CPU) of a communication device transmits a record of data. In step 301, the user may input instructions provided by the data transmission software by keying on one communication device ~~for setting to set the~~ one communication device as a master and another communication device connected to the one communication device by a signal line as a slave. In step 302, data transmission software in the master determines whether a division of data is necessary. If yes, the process goes to step 303. If not, the process goes to step 306 for the causing master to transmit data prior to ending the process. In step 303, ~~divide the data is divided~~ into a plurality of units and assign a unique identification (ID) associated with one communication device is assigned to each unit. In step 304, ~~transmit units are transmitted~~ to a communication device through signal line. In step 305, the communication device transmits units.

FIG. 4 is a flow chart diagram ~~shows~~ showing how the CPU of the other communication device receives data. In step 401, ~~receive the~~ associated units are

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received as determined by the data transmission software. In step 402, ~~Transmit~~ units are transmitted to a communication device set as a master through a signal line. In step 403, data transmission software in the master is utilized again to regroup units to recover the original record of data.

5 In the invention, the communication device is implemented as a mobile phone. Also, data transmitted on the mobile phone is divided into a plurality of units each having a predetermined size which is no more than 14K bit per second (bps) as defined by the existing mobile phone communication protocol. In one example, a record of data having a size of 100K bit per second (bps) is divided into eight units each of 12.5K
10 bit per second (bps). Hence, it is possible ~~of transmitting to transmit~~ such data in one second if there are eight mobile phones are coupled together. Hence, the invention can significantly save data transmission time.

 While the invention has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art
15 without departing from the scope and spirit of the invention set forth in the claims.